

REMARKS

Claims 1-24 were pending in the application. No claims have been allowed. Dependent claims 25-38 have been added. Claims 1, 6, 12, 14, 15, 16, 19, 20, 21, and 24 have been amended. Cancellation of claims 4 and 5 without prejudice is respectfully requested. Reconsideration of the application is respectfully requested in view of the foregoing amendments and following remarks.

Cited Art

U.S. Patent No. 4,581,712 to Perry et al. ("Perry") is entitled "roof pressure monitoring system."

U.S. Patent No. 4,604,706 to Fisher, Jr. et al. ("Fisher") is entitled "apparatus for failure predication of earth structures."

U.S. Patent No. 5,542,788 to Stankus et al. ("Stankus") is entitled "method and apparatus for monitoring mine roof support systems."

U.S. Patent No. 4,480,480 to Scott et al. ("Scott") is entitled "system for assessing the integrity of structural systems."

Overview

Applicants have amended the claims by adding, for example, "mobile roof support unit." Applicants also present new claims pursuing additional subject matter, such as a "sensory indicator indicating safe conditions." These amendments are supported by the specification as filed.

Patentability of Claims 1-3 and 6-24 over Perry-Fisher-Stankus under § 103

The Action rejects claims 1-7, 11-13, 15, and 21-24 under 35 U.S.C. § 103(a) as being unpatentable over Perry in view of Fisher and Stankus. Applicants find insufficient motivation to combine the references. However, Applicants respectfully submit the claims in their present amended form are allowable over the cited art, even if combined.

"To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." (MPEP § 2143.03). Here, none of the cited references, Perry, Fisher, or Stankus describes "monitoring the dynamic loading rate on support

systems of a *mobile roof support unit*" via "at least one load sensing device adapted to be coupled to one or more of the support systems of the *mobile roof support unit*" as recited in amended claim 1.

Perry describes a sensor "located in intimate contact between the mine roof and the supporting bolt or column." (See col. 2, lines 30-32 and col. 3, lines 58-62). In other words Perry monitors the pressure being applied by the ceiling of the mine to specialized plate sensors on stationary roof supports and roof bolts. Perry does not describe monitoring the dynamic loading rate on support systems of a mobile roof support unit.

Fisher describes a portable system that measures microseismic activity in order to detect hazardous conditions in underground mines. A "sensor and preamplifier . . . are positioned contiguous to an earth structure to be monitored." (Abstract). In other words, Fisher monitors the ground and surrounding rock strata for changes in microseismic activity. This is clearly different from monitoring the dynamic loading rate on support systems of a mobile roof support unit" using "at least one load sensing device adapted to be coupled to one or more of the support systems of the mobile roof support unit" as recited in amended claim 1.

Stankus describes an "instrumentation means installed in the rock strata surrounding the excavated area and connected to the primary system of roof bolt assemblies and the secondary system of roof truss assemblies for measuring the force exerted by the rock strata on the primary and secondary system to determine the operability of the systems to support the rock strata" in longwall mining operations (Col. 4, lines 34-40). Stankus expands the width of the recovery room to approximately twice the width utilized in the prior art system and uses a reinforced roof support system to withstand the abutment pressures. (Stankus, col. 8, lines 65-57 and col. 9, lines 1- 3). In other words, Stankus monitors reinforced stationary roof support systems. The Stankus system of monitoring stationary support systems also clearly differs from the claim language.

For at least this reason, the claim is non-obvious under a Perry-Fisher-Stankus combination. Therefore, Applicants respectfully note that claim 1 is in a condition for allowance. Claims 12, 15, 21, and 24 all recite a similar element; thus, they too are in condition for allowance. Claims 2-3, 6-7, 9, 11, 13, and 22-23 all depend from an independent claim. Since dependent claims incorporate the elements of the independent claims, they also are allowable.

Patentability of Claims 9, 14, and 20 over Perry-Fisher-Stankus-Scott under § 103(a)

In paragraph 3, the Office Action rejects claims 9, 14, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Perry in view of Fisher and Stankus and Scott. Applicants respectfully submit the claims in their present form are allowable over the cited art. As described above Perry, Fisher, and Stankus do not teach at least one aspect of the claim language. Similarly, Scott fails to describe describes “monitoring the dynamic loading rate on support systems of a *mobile roof support unit*” using “at least one load sensing device adapted to be coupled to one or more of the support systems of the *mobile roof support unit*” as recited in amended claim 1.

Scott describes a number of ways in which its sensor monitoring devices may be used. However, none of the described ways includes a mobile roof support unit like the one described in the pending patent application. Thus, a Perry-Fisher-Stankus-Scott combination would not teach at least one aspect of the claim language. Hence, claims 9, 14, and 20 are also in condition for allowance and such action is earnestly solicited.

Patentability of Claim 19 over Perry-Fisher-Stankus-Koppers under § 103(a)

In paragraph 4, the Office Action asserts a rejection against claim 19 as being unpatentable over Perry in view of Fisher and Stankus and Koppers. Applicants respectfully submit that claim 19 has been amended and in its present form is allowable over the cited art for at least substantially the same reasons set forth above. Claim 19 depends from claim 15, which includes language similar to the language in claim 1. Thus, for similar reasons to claim 1, claim 15 is patentably distinguishable from Perry, Fisher, and Stankus. For example, Koppers does not describe “monitoring the dynamic loading rate on support systems of a *mobile roof support unit*” by “receiving support system loading information from at least one load sensing device coupled to the support systems of the *mobile roof support unit*” as recited in amended claim 15. Because claim 19 depends from claim 15, an element of claim 19 is not taught or suggested by an alleged Perry-Fisher-Stankus-Koppers combination. Thus, claim 19 is in condition for allowance.

Patentability of New Dependent Claims

Applicants have amended the application to include new dependent claims which each recite novel and non-obvious patentably-distinct subject matter supported by the specification as filed.

For example, claim 25 recites a sensory indicator “activated to indicate safe conditions.” Claim 26 recites a “green light.”

Claim 30 recites a “communications interface operable to receive values for controlling the sensory indicators.” Claim 36 recites “monitors pressure inside one or more hydraulic jacks associated with the mobile roof support unit.”

Further, the new claims depend from other claims that are allowable. For at least these reasons, the new claims are allowable at this time.

Request for Interview

If any issues remain, the Examiner is formally requested to contact the undersigned attorney prior to issuance of the next Office Action in order to arrange a telephonic interview. It is believed that a brief discussion of the merits of the present application may expedite prosecution. Applicants submit the foregoing formal Amendment so that the Examiner may fully evaluate Applicants' position, thereby enabling the interview to be more focused.

This request is being submitted under MPEP § 713.01, which indicates that an interview may be arranged in advance by a written request.

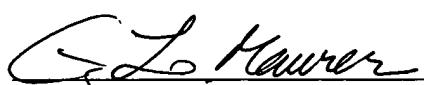
Conclusion

The claims in their present form should now be allowable. Such action is respectfully requested.

Respectfully submitted,

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